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**From:** Orme-Zavaleta, Jennifer [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=3C5A111DC377411595E5B24B5D96146B-ORME-ZAVALITA, JENNIFER]  
**Sent:** 1/31/2021 6:21:00 PM  
**To:** Rodan, Bruce [rodan.bruce@epa.gov]  
**CC:** Blackburn, Elizabeth [Blackburn.Elizabeth@epa.gov]  
**Subject:** Fwd: Follow Up to Discussion  
**Attachments:** Weaver Environ Epi 2019 Neighborhood SES PM2.5 CV DM.pdf; Mirowsky JESEE 2017 Residential SES CV Metabolic Health.pdf; aging-v12i23-202341.pdf; Rappold EST 2017 Community Wildfire Vulnerability Index.pdf; Ward-Caviness Epigenetics Neighborhood disadvantage.pdf

Take a look. Haven't responded back yet. Any thoughts before I do?

Jennifer Orme-Zavaleta, PhD  
Acting Assistant Administrator and  
Principal Deputy Assistant Administrator  
Office of Research and Development  
US EPA  
Office  
Cell.  
Sent from my iPhone

Ex. 6 Personal Privacy (PP)

Begin forwarded message:

**From:** "Cascio, Wayne" <Cascio.Wayne@epa.gov>  
**Date:** January 30, 2021 at 12:20:56 PM EST  
**To:** "Orme-Zavaleta, Jennifer" <Orme-Zavaleta.Jennifer@epa.gov>  
**Cc:** "Holt, Kay" <Holt.Kay@epa.gov>  
**Subject:** RE: Follow Up to Discussion

Jennifer – On Friday I had a long conversation with Charles Lee on the topic of EJ. With the Agency's new found interest in EJ he asked that I write a summary of our conversation as a starting point to develop an approach to summarize existing evidence and generate new evidence to support policy and rule changes that would incorporate evidence of social factors interacting with environmental exposures to cause health inequities. The text I intended to send him is below. I'm sharing with you first so that if any of it gives you pause you can modify. There are no promises here, what I wrote just acknowledges some of our previous work, the importance of the problem and the value of working to find solutions. Wayne

Charles – I very much appreciated the discussion yesterday. Here are my thoughts after some consideration. I've also included a series of papers produced by CPHEA researchers that address environmental justice issues. This is a representative selection of papers, and in no way is exhaustive. Let me know your thoughts about the text that follows. Best wishes, Wayne

## Ex. 5 Deliberative Process (DP)

# **Ex. 5 Deliberative Process (DP)**

Wayne

Wayne E. Cascio, MD, FACC | Director | Center for Public Health and Environmental Assessment | Office of Research and Development | U.S. Environmental Protection Agency | Research Triangle Park, NC 27711 | Phone: 919.541.2508 | Cell: 919.627.3762|

From: Lee, Charles <Lee.Charles@epa.gov>

Sent: Friday, January 29, 2021 9:44 PM  
To: Cascio, Wayne <Cascio.Wayne@epa.gov>  
Subject: Follow Up to Discussion

Hi Wayne

Here are a number of the articles I mentioned today. The key one is attached. This is Rachel Morello-Frosch's article that found a correlation between measures of residential segregation and cancer risk associated with ambient air toxics. This is the article which gave rise to my thinking about environmental effects modification by social factors. Citations for this and other relevant articles are below.

- Morello-Frosch, Rachel, and Bill M Jesdale. "Separate and unequal: residential segregation and estimated cancer risks associated with ambient air toxics in U.S. metropolitan areas." *Environmental health perspectives* vol. 114,3 (2006): 386-93. doi:10.1289/ehp.8500

- Morello-Frosch, Rachel, and Edmond D Shenassa. "The environmental "riskscape" and social inequality: implications for explaining maternal and child health disparities." *Environmental health perspectives* vol. 114,8 (2006): 1150-3. doi:10.1289/ehp.8930

- Bell, Michelle L and Francesca Dominici, "Effect Modification by Community Characteristics on the Short-Term Effects of Ozone Exposure and Mortality in 98 US Communities," *American Journal of Epidemiology*, Vol 167, No. 8, DOI: 10.1093/aje/kwm396, February 25, 2008

- Nordone, A, et.al., "Associations between historical residential redlining and current age-adjusted rates of emergency department visits due to asthma across eight cities in California: an ecological study," *Lancet Planet Health* 2020; 4: e24–31,  
[https://www.thelancet.com/action/showPdf?pii=S2542-5196%2819%2930241-4<https://gcc02.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.thelancet.com%2Faction%2FshowPdf%3Fpii%3DS2542-5196%252819%252930241-4&data=04%7C01%7COrme-Zavaleta.Jennifer%40epa.gov%7C11221822b1be4d74e60e08d8c54362e9%7C88b378b367484867acf976aacbeca6a7%7C0%7C0%7C637476240558336710%7CUnknown%7CTWFpbGZsb3d8eyJWljiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6IklhaWwiLCJXVCI6Mn0%3D%7C1000&sdata=JF6qpbGTcSldhFahlkUMg0TSvhpTBRq9Xv1yDSvxdyQ%3D&reserved=0](https://www.thelancet.com/action/showPdf?pii=S2542-5196%2819%2930241-4&https://gcc02.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.thelancet.com%2Faction%2FshowPdf%3Fpii%3DS2542-5196%252819%252930241-4&data=04%7C01%7COrme-Zavaleta.Jennifer%40epa.gov%7C11221822b1be4d74e60e08d8c54362e9%7C88b378b367484867acf976aacbeca6a7%7C0%7C0%7C637476240558336710%7CUnknown%7CTWFpbGZsb3d8eyJWljiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6IklhaWwiLCJXVCI6Mn0%3D%7C1000&sdata=JF6qpbGTcSldhFahlkUMg0TSvhpTBRq9Xv1yDSvxdyQ%3D&reserved=0)

- Hoffman, Jeremy S, Vivek Shandas, and Nicholas Pendleton, "The Effects of Historical Housing Policies on Resident Exposure to Intra-Urban Heat: A Study of 108 US Urban Areas,"

Climate, January 13, 2020, <https://www.mdpi.com/2225-1154/8/1/12/htm><<https://gcc02.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.mdpi.com%2F2225-1154%2F8%2F1%2F12%2Fhtm&data=04%7C01%7COrme-Zavaleta.Jennifer%40epa.gov%7C11221822b1be4d74e60e08d8c54362e9%7C88b378b367484867acf976aacbeca6a7%7C0%7C0%7C637476240558346668%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ikl1haWwiLCJXVCI6Mn0%3D%7C1000&sdata=qo1b%2FjyCYUFyPwVDln9Z4Q%2BWYUM3okS8O7vv9u083os%3D&reserved=0>>

I look forward to getting copies of the articles you shared with me. Also, can you write me a short response (no more than one or two paragraphs) regarding the thought piece that I shared with you stating why and how this idea of environmental effects modification by social factors can be a salient area of research. This would help me construct a short piece introducing the concept to new leadership in OP.

Best  
Charles

Charles Lee  
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